

Amendments to the Claims

The current status of all claims is listed below and supercedes all previous lists of claims.

Please cancel claims 4-10, 12, 13, 15, 16, 18, 19, 27-36, 39-42, 44-64, 67, 69-94, 96-119, 122, 124, 125, 127-166, 172, 174, 176, 177, 179-198 without prejudice to the applicants' right to reinstate those claims or pursue them in a further application.

Please amend claims 11, 14, 17, 20, 24, 26, 37, 43, 66, 68, 95, 120, 121, 123, 126, 167, 170, 171, 173 and 178 as set forth below.

Please add new claims 199-203 as set forth below.

1. (Original) A method for identifying an immunogenic protein or fragment thereof capable of eliciting an immune response, said method comprising obtaining a protein complex comprising an immunoglobulin or mixtures thereof or an immunoglobulin-containing fraction from a subject or a cell, tissue or organ thereof and identifying a protein or fragment thereof bound to the immunoglobulin by virtue of an antigen antibody interaction, thereby identifying an immunogenic protein or fragment thereof capable of eliciting an immune response.

2. (Original) The method according to claim 1 further comprising obtaining a sample from the subject that comprises the protein complex or mixture thereof or immunoglobulin-containing fraction.

3. (Original) The method according to claim 2 further comprising obtaining one or more immunoglobulin-containing fractions from the sample.

4-10. (Cancelled)

11. (Currently Amended) The method according to claim 10 wherein the protein complex or immunoglobulin-containing fraction is obtained by a process comprising said separating or purifying a sample from the subject comprises contacting the sample with one or more compounds capable of binding an immunoglobulin for a time and under conditions sufficient

for binding to occur and isolating the compound, wherein the one or more compounds is/are previously immobilized on a solid support, matrix or resin.

12-13. (Cancelled)

14. (Currently Amended) The method according to claim ~~11 12 or 13~~ further comprising washing the one or more immobilized compounds to thereby remove non-specifically bound or unbound protein.

15-16. (Cancelled)

17. (Currently Amended) The method according to claim ~~1 or 2~~ wherein the subject suffers from an chronic infection or has suffered previously from an chronic infection.

18-19. (Cancelled)

20. (Currently Amended) The method according to ~~any one of claims 17 to 20~~ wherein the infection is selected from the group consisting of a viral infection, a bacterial infection, a yeast infection, a fungal infection and a parasitic infection.

21. (Original) The method according to claim 20 wherein the infection is a bacterial infection.

22. (Original) The method according to claim 21 wherein the bacterial infection is a *Pseudomonas* infection.

23. (Original) The method according to claim 22 wherein the bacterial infection is a *Mycobacterium* infection.

24. (Currently Amended) The method according to ~~any one of claims 17 to 23~~ wherein the infection is a pulmonary infection.

25. (Original) The method according to claim 24 wherein the pulmonary infection is caused by or associated with the presence of *Pseudomonas aeruginosa* or *Mycobacterium tuberculosis*.

26. (Currently Amended) The method according to claim 1 ~~or 2~~ wherein the subject suffers from an autoimmune condition associated with an inflammatory condition.

27-36. (Cancelled)

37. (Currently Amended) The method according to ~~any one of claims 11 to 36~~ further comprising linking immunoglobulin to the one or more compounds.

38. (Original) The method according to claim 37 wherein linking comprises performing a process that comprises contacting a cross-linking agent with the one or more compounds having immunoglobulin bound thereto for a time and under conditions sufficient for covalent linkage to occur between a compound and immunoglobulin.

39-42. (Cancelled)

43. (Currently Amended) The method according to claim 1 wherein the A method for identifying an immunogenic protein or immunogenic protein fragment of an agent that causes a disease or disorder in a subject comprising:

(i) obtaining a protein complex comprising an immunoglobulin or mixtures thereof or an immunoglobulin-containing fraction from a subject ~~suffers~~suffering from ~~athe~~the disease or disorder or ~~has~~having suffered previously from the disease or disorder said method further comprising or a cell, tissue or organ thereof;

(ii) contacting immunoglobulin in the protein complex or immunoglobulin-containing fraction with a sample comprising ~~an~~the agent that causes the disease or disorder or a derivative thereof; and

(ii) identifying a protein or fragment thereof bound to said immunoglobulin by virtue of an antigen-antibody interaction,

wherein the identified protein is an immunogenic protein or immunogenic protein fragment of an agent that causes a disease or disorder in a subject.

44-64. (Cancelled)

65. (Original) The method according to claim 43 wherein the sample comprises a protein or cellular extract of the agent that causes the disease or disorder.

66. (Currently Amended) The method according to claim 43 wherein the agent that causes the disease or disorder is an infectious agent selected from the group consisting of a virus, a bacterium, a yeast, a fungus and a parasite.

67. (Cancelled)

68. (Currently Amended) The method according to claim 67 wherein the infectious agent is a bacterium *Pseudomonas aeruginosa* or *Mycobacterium tuberculosis*.

69-94. (Cancelled)

95. (Currently Amended) The method according to claim 1 wherein the A method for identifying an immunogenic protein or fragment thereof capable of eliciting an immune response in an autoimmune condition in a subject, said method comprising:
——— (i) ——— obtaining a protein complex comprising an immunoglobulin or mixtures thereof or an immunoglobulin containing fraction from a subject suffers suffering from an autoimmune condition associated with an inflammatory condition said method additionally comprising or a cell, tissue or organ thereof;
——— (ii) ——— contacting immunoglobulin in the protein complex or immunoglobulin-containing fraction with a sample comprising protein from a subject suffering from an autoimmune condition; and
——— (ii) ——— identifying a protein or fragment thereof bound to said immunoglobulin by virtue of an antigen-antibody interaction;
——— wherein the identified protein is an immunogenic protein or fragment thereof capable of eliciting an immune response in an autoimmune condition in the subject

96-119. (Cancelled)

120. (Currently Amended) The method according to claim ~~95~~ 117 wherein the subject suffers from cystic fibrosis.

121. (Currently Amended) The method according to claim 120 wherein the subject is suffering from or has previously suffered from an acute pulmonary exacerbation.

122. (Cancelled)

123. (Currently Amended) The method according to ~~any one of~~ claims 120 ~~to~~ 122 wherein the subject additionally suffers from an infection.

124-125. (Cancelled)

126. (Currently Amended) The method according to claim 125 wherein the subject suffers from an infection caused by ~~bacterium comprises a~~ *Pseudomonas aeruginosa* infection.

127-166. (Cancelled)

167. (Currently Amended) The method according to ~~any one of~~ claims 1 ~~to~~ 166 additionally comprising separating an immunogenic protein or fragment thereof bound to the immunoglobulin by virtue of an antigen antibody interaction from the immunoglobulin.

168. (Original) The method according to claim 167 wherein the immunogenic protein or fragment thereof is separated from the immunoglobulin by a method that comprises contacting the protein complex or immunoglobulin-containing fraction with a compound that disrupts the antigen-antibody interaction for a time and under conditions sufficient to disrupt the antigen-antibody interaction.

169. (Original) The method according to claim 168 wherein the compound that disrupts the antigen-antibody interaction is selected from the group consisting a compound that modulates the pH of the immunoglobulin fraction, a salt, an ionic detergent, a dissociating agent and a chaotropic agent.

170. (Currently Amended) The method according to ~~any one of claims 1 to 169~~ additionally comprising isolating a protein that is or was bound to the immunoglobulin-containing fraction by virtue of an antigen-antibody interaction.

171. (Currently Amended) The method according to claim 170 wherein the protein is isolated by performing two-dimensional gel electrophoresis. ~~using gel electrophoresis.~~

172. (Cancelled)

173. (Currently Amended) The method according to ~~any one of claims 1, 43, 95 or 128~~ wherein a protein that is or was bound to the immunoglobulin-containing fraction by virtue of an antigen-antibody interaction is identified using mass spectrometry.

174. (Cancelled)

175. (Original) A method comprising:

(a) obtaining a protein complex comprising an immunoglobulin or mixtures thereof or an immunoglobulin-containing fraction from a subject that has raised an immune response against an immunogenic protein or fragment thereof or a cell, tissue or organ thereof by a method comprising contacting a sample from the subject with one or more compounds capable of binding an immunoglobulin for a time and under conditions sufficient for binding to occur and isolating the one or more compounds;

(b) linking immunoglobulin in the protein complex or immunoglobulin-containing fraction to the one or more compounds;

(c) separating an immunogenic protein or fragment thereof from the linked immunoglobulin;

(d) contacting a sample comprising the immunogenic protein or fragment thereof with the linked immunoglobulin;

(e) optionally, separating the immunogenic protein or fragment thereof from the linked immunoglobulin;

(f) repeating (d) and (e) one or more times; and

(g) identifying a protein or fragment thereof separated from the immunoglobulin,

thereby identifying an immunogenic protein or fragment thereof.

176-177. (Cancelled)

178. (Currently Amended) The method according to ~~any one of~~ claims 175 to ~~177~~ wherein (d) contacting a sample comprising the immunogenic protein or fragment thereof with the linked immunoglobulin and (e) separating the immunogenic protein or fragment thereof from the linked immunoglobulin are repeated a sufficient number of times to identify one or more immunogenic proteins.

179-198. (Cancelled)

199. (New) The method according to claim 37 additionally comprising;

- (a) separating an immunogenic protein or fragment thereof from the linked immunoglobulin;
- (b) contacting a sample comprising the immunogenic protein or fragment thereof with the linked immunoglobulin;
- (c) separating the immunogenic protein or fragment thereof from the linked immunoglobulin;
- (d) optionally, repeating (b) and (c) one or more times; and
- (e) identifying a protein or fragment thereof separated from the immunoglobulin, thereby identifying an immunogenic protein or fragment thereof bound to an immunoglobulin by an antigen antibody interaction.

200. (New) The method according to claim 199 wherein (b) contacting a sample comprising the immunogenic protein or fragment thereof with the linked immunoglobulin and (c) separating the immunogenic protein or fragment thereof from the linked immunoglobulin are repeated a sufficient number of times to identify one or more immunogenic proteins.

201. (New) The method according to claim 1 wherein the immunogenic protein or fragment thereof is identified by determining the amino acid sequence of the protein or fragment thereof.

202. (New) The method according to claim 43 additionally comprising immobilizing the protein complex or immunoglobulin-containing fraction prior to contacting the protein complex or immunoglobulin-containing fraction with the sample.

203. (New) The method according to claim 95 additionally comprising immobilizing the protein complex or immunoglobulin-containing fraction prior to contacting the protein complex or immunoglobulin-containing fraction with the sample.